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CLAIMS:

1. Apparatus for transmitting information by means of electromagnetic fields in free space comprising an antenna in the form of a super-toroidal conductor including a length of conductor l , an electrical signal generator controllable to produce electrical signals having at least a selected frequency which is not less than $2c/l$ where c is the speed of light in free space, a coupler to couple said electrical signals from said generator to energise said antenna for launching the electromagnetic fields to transmit the information, and a modulator to modulate the electromagnetic fields launched by the antenna in accordance with the information to be transmitted.
2. Apparatus for receiving information transmitted by means of electromagnetic fields in free space from a distant source, the apparatus comprising an antenna in the form of a super-toroidal conductor having a length of conductor l , a receiver controllable to receive electrical signals having at least a selected frequency which is not less than $2c/l$ where c is the speed of light in free space, a coupler to couple, from the antenna to the receiver, electrical signals produced in the antenna due to information with electromagnetic fields carrying the transmitted information, and a detector for detecting the information from the electrical signals.